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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,057	09/29/2000	Masaharu Tsuboi	0505-0692P	9453

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EXAMINER

PEREZ, GUILLERMO

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 02/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/675,057

Applicant(s)

TSUBOI, MASA HARU

Examiner

Guillermo Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3-11, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Takagi et al. (WO 97/33359).

Referring to claim 1, Takagi et al. disclose a motor-assisted drive unit for a vehicle (see column 1, lines 5-8 of the U. S. Pat. 6,081,056, which is a translation of the WO 97/33359 document), comprising:

a motor for providing power to a drive wheel of the vehicle; and
a control board (21,22) on which control devices (24) of the motor are mounted, the control board (21,22) being arranged substantially perpendicularly to the motor shaft (15) of the motor, at least part of the control board (21,22) extending to a position overlapped with the motor.

Referring to claim 3, Takagi et al. disclose a casing (2), the motor being disposed within the casing (2).

Referring to claim 4, Takagi et al. disclose that the control board (21,22) is elastically supported (with spring 28) in the casing (2).

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Referring to claim 5, Takagi et al. disclose that the control devices (24) of the motor are mounted on two surfaces of the control board (21,22 and figure 11); and

a semiconductor device (24 and column 6, lines 5-12 of the translation) and a thermally conductive board (29 and column 6, lines 63-65 of the translation) are provided on a surface on a casing side of the control board (21,22).

Referring to claim 6, Takagi et al. disclose that at least part of the thermally conductive board (29) abuts the semiconductor device (24).

Referring to claim 7, Takagi et al. disclose that at least a part of the thermally conductive board (29) is in contact with the casing (2).

Referring to claim 8, Takagi et al. disclose a motor-assisted drive unit for a motor-assisted vehicle, comprising:

a motor for providing power to a drive wheel of the vehicle;

a first control board (21,22) having at least one control device (24) mounted thereon; and

a second control board (21,22) having at least one control device (column 5, line 67 through column 6, line 2 of the translation) mounted thereon,

wherein the first and second control boards (21,22) extend in a direction substantially perpendicular to a motor shaft (15) of the motor, and the second control board (21,22) is overlapped with at least a part of the first control board (21,22).

Referring to claim 9, Takagi et al. disclose a casing (2), the motor and the first and the second control boards (21,22) being disposed in the casing (2).

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Referring to claim 10, Takagi et al. disclose that the at least one control device (24) mounted on the first control board (21,22) includes at least one of a control processor, a capacitor (23 and column 6, lines 61-65 of the translation), and a relay.

Referring to claim 11, Takagi et al. disclose that the at least one control device mounted on the second control board (21,22) includes transistor (column 6, lines 5-13 of the translation).

Referring to claim 14, Takagi et al. disclose a casing (2), the motor and the first and the second control boards (21,22) being disposed in the casing (2), the second control board (21) being attached to an inner wall surface (5) of the casing (2), and the first control board (22) being disposed over the second control board (21), with a gap disposed between the first control board and the second control board (21,22).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 12-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. in view of Harms et al. (U. S. Pat. 4,668,898).

Takagi et al. disclose a motor-assisted drive as described on item 1 above.

Takagi et al. disclose that one of the control devices is a processing unit. However,

Takagi et al. do not disclose that the processing unit being mounted on a portion of the

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control board so as to project into a gap between an overlapped portion of the control board and the motor. Takagi et al. do not disclose that the first control board is a printed wiring board, and the second control board is a metal board. Takagi et al. do not disclose that the second control board includes aluminum.

Harms et al. disclose that the processing unit being mounted on a portion of the control board (21) so as to project into a gap between an overlapped portion of the control board (21) and the motor (13). Harms et al. disclose that the first control board (21) is a printed wiring board, and the second control board (19) is a metal board. Harms et al. disclose that the second control board (19) includes aluminum (column 9, lines 9-14). The invention of Harms et al. has the purpose of improving heat dissipation in electronically commutated high power motors.

It would have been obvious at the time the invention was made to modify the motor-assisted drive of Takagi et al. and provide it with the control board configuration disclosed by Harms et al. for improving heat dissipation in electronically commutated high power motors.

3. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. in view of Okada (U. S. Pat. 5,444,314).

Takagi et al. disclose a motor-assisted drive as described on item 1 above. However, Takagi et al. do not disclose that the control board is elastically supported by a rubber member disposed around a casing boss portion for rotatably supporting the motor shaft of the motor. Takagi et al. do not disclose that the rubber member is compressed between the control board and a motor supporting portion of the casing.

Okada discloses that the control board (12) is elastically supported by a rubber member (14) disposed around a casing boss portion (3) for rotatably supporting the motor shaft of the motor. Okada discloses that the rubber member (14) is compressed between the control board (12) and a motor supporting portion (15) of the casing (1). Okada's invention has the purpose of dampening vibration and providing a sound-proofing casing to the motor.

It would have been obvious at the time the invention was made to modify the motor-assisted drive of Takagi et al. and provide it with rubber configuration disclosed by Okada for the purpose of dampening vibration and providing a sound-proofing casing to the motor.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takagi et al. (U. S. Pat. 6,081,056) is the translation of the WO 97/33359 document used in the present rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
February 22, 2002


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